



Just an example which fails for same algo as undirected graph.

Look at 3,4,7,5

Node has to be visited on the same path in directed graph and not a different path for it to be declared cycle

```

class Solution {
    // Function to detect cycle in a directed graph.
    public boolean isCyclic(int V, ArrayList<ArrayList<Integer>> adj) {
        // code here
        boolean[] visited = new boolean[V];
        boolean[] pathVisited = new boolean[V];

        for (int node = 0; node < V; node++) {
            if (!visited[node] && hasCycle(node, adj, visited, pathVisited)) {
                return true;
            }
        }

        return false;
    }

    private boolean hasCycle(
        int node,
        ArrayList<ArrayList<Integer>> adj,
        boolean[] visited,
        boolean[] pathVisited
    ) {
        visited[node] = true;
        pathVisited[node] = true;

        for (int ng: adj.get(node)) {
            if (!visited[ng] && hasCycle(ng, adj, visited, pathVisited))
                return true;
            else if (pathVisited[ng])
                return true;
        }
        pathVisited[node] = false;
        return false;
    }
}
  
```

← DFS